Parachute Cord Tension Sensor

Completed Technology Project (2012 - 2012)

Project Introduction

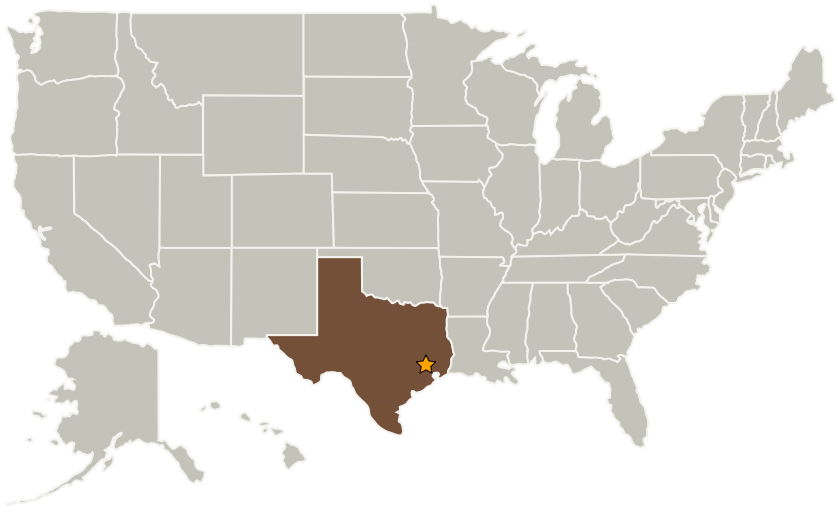
To design and fabricate a light weight (few oz), very small (~2 inch length) parachute cord tension sensor demonstrator device.

A major challenge for the CPAS (The parachute system for the Orion/MPCV vehicle) program is to estimate the jerk load during parachute deployment. Accurate determination of this jerk load would enable proper selection and sizing of not just the parachute cords but the entire parachute attach structure on the vehicle. At present, this is estimated using analytical methods based on fluid mechanics principles. Current sensors that may be attached to the parachute cords tend to be very heavy, occupy too much volume and potentially interfere with the parachute deployment process. Instrumenting 60+ parachute cords with these large sensors would thus not be viable. The proposed sensor will alleviate these issues. The CPAS project manager did express the desire for such a device.

Anticipated Benefits

Current sensors that may be attached to the parachute cords tend to be very heavy, occupy too much volume and potentially interfere with the parachute deployment process. Instrumenting 60+ parachute cords with these large sensors would thus not be viable. The proposed sensor will alleviate these issues.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Johnson Space Center (JSC)

Responsible Program:

Center Innovation Fund: JSC CIF

Center Innovation Fund: JSC CIF

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Organizations Performing Work	Role	Type	Location
★Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas
Jacobs Engineering Group, Inc.	Supporting Organization	Industry	Dallas, Texas

Primary U.S. Work Locations
Texas

Links

Patent Link 1
(no url provided)

NTR 1
(http://MSC-25396-1)

Project Management

Program Director:
Michael R Lapointe

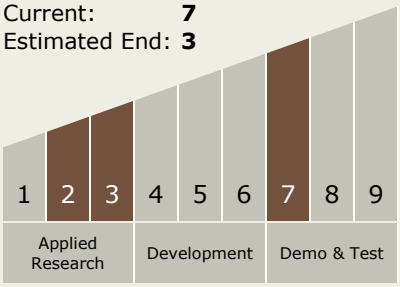
Program Manager:
Carlos H Westhelle

Project Manager:
Satish C Reddy

Principal Investigator:
Satish Reddy

Technology Maturity (TRL)

Start: **2**
Current: **7**
Estimated End: **3**



Technology Areas

Primary:

- TX09 Entry, Descent, and Landing
  - TX09.4 Vehicle Systems
    - TX09.4.6 Instrumentation and Health Monitoring for EDL